

Date: Tuesday, 7/18/2006 3:00:53 PM  
 User: Kihl Jdltlslott

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services		Drawing Name	: 02.500 SUPPORT	
Job Number	: 27970		Part Number	: D28921	
Estimate Number	: 11058		Drawing Number	: D2892 REV A	
P.O. Number	: N/A		Project Number	: N/A	
This Issue	: 7/18/2006 S.O. No. : N/A		Drawing Revision	: A	
Prst Rev.	: NC		Material	: N/A	
First Issue	: N/A		Due Date	: 8/18/2006 Qty: 8 Um: Each	
Previous Run	: 27506		Type	: PURCHASED PARTS	
Written By	:		7/18/2006		
Checked & Approved By	:		06.07.19		
Comment	:		Est. C 02.11.26 Added P/O KJ		

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0	PG	PURCHASING
		 <b>Comment:</b> PURCHASING <i>1721</i> <i>u 06-07-19</i> <b>Issue P/O:</b> <i>1721</i> <b>Description:</b> D6104-003 <b>Material:</b> 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104 <b>Material release note required.</b> <b>Blank size makes (2) D2891-1 <i>3.25 x 38</i> </b>
2.0	D6104003	17-4 SS Roundbar 3.25"OD
		 <b>Comment:</b> Qty.: 1.0000 Each(s)/Unit Total : 8.0000 Each(s) <b>Support</b>
3.0	PACKAGING-1	PACKAGING RESOURCE #1
		 <b>Comment:</b> PACKAGING RESOURCE #1 <b>Recieve &amp; Inspect for Transit Damage</b> <b>Ensure Material Release Note is attached</b> <i>10/6/27 (8)</i>
4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
		 <b>Comment:</b> MORI SEIKI LATHE <i>Issue P.O. 2068</i> <i>Turn part DSK077</i> <b>Turn blank for Haas as per Polio FA082</b>
5.0	QC1	INSPECT ALL DIM TO DIM SHEET
		 <b>Comment:</b> INSPECT ALL DIM TO DIM SHEET <i>Receive &amp; Inspect for transit damage probability (8)</i>
<i>5b Inspect level 5</i> <i>En 06/10/19</i>		

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)								
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector		
			Initial Design Mgr	Action Description Design Mgr	Sign & Date					

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes  No  DQA:  Date: 06/16/27

NOTE: Date & initial all entries

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Date: Tuesday, 7/18/2006 3:00:53 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 02.500 SUPPORT

Job Number: 27970

Part Number: D28921

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

BAND SAW

BAND SAW



10-10-30  
M11AAS



Comment: BAND SAW

Machine as per Folio FA082  
Tumble & Deburr

SN/SG 06/10/22

14

7.0 QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SN/SG 06/10/22

14

8.0 QC8

SECOND CHECK



Comment: SECOND CHECK

J.F. 06/10/23

14

9.0 POWDER COATING

POWDER COATING



M101575

Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.2) as per QSI 005 4.3

YF 06/10/26 X 14

14

10.0 QC3

INSPECT POWDER COAT/ CHEMICAL CONVERSION



DB 06/10/26 C18

Comment: INSPECT POWDER COAT/ CHEMICAL CONVERSION

11.0 PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: SF1610

B 06/10/26 14

12.0 DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

D 06/10/27 14

Job Completion



U 06/10/27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

NOTE: Date & initial all entries

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

DART AEROSPACE LTD	Work Order:	27970
Description: Ø2.500 Support	Part Number:	D2892-1
Inspection Dwg: D2892 Rev. A		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2892 Rev. A/DSK077 Rev. A and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				1	2	3	4		
<b>Lathe Section</b>									
A	2.524	2.529		2.529	2.529	2.529	2.529		
B	3.702	3.722		3.714	3.712	3.711	3.716		
C	2.814	2.834		2.822	2.823	2.825	2.822		
D	0.718	0.738		0.726	0.722	0.723	0.725		
E	0.090	0.110		0.094	0.095	0.090	0.093		
F	2.714	2.734		2.716	2.714	2.722	2.714		
G	2.029	2.049		2.033	2.032	2.038	2.035		
H	3.214	3.234		3.222	3.220	3.222	3.223		
I	0.913	0.933		0.920	0.920	0.923	0.920		
J	0.022	0.042		0.037	0.032	0.037	0.032		
K	0.090	0.110		0.094	0.102	0.098	0.093		
L									
<b>HAAS Section</b>									
AA	0.115	0.135		0.130	0.130	0.131	0.127		
AB	0.290	0.310		0.300	0.304	0.301	0.306		
AC	0.040	0.060		0.046	0.046	0.050	0.049		
AD	0.115	0.135		0.125	0.129	0.129	0.123		
AE	0.240	0.260		0.244	0.249	0.249	0.245		
AF	0.188	0.193	DT0706	0.189	0.189	0.189	0.189		
AG	0.240	0.260		0.250	0.250	0.250	0.250		
AH	1.126	1.146		1.146	1.143	1.141	1.145		
AI	0.454	0.474		0.465	0.465	0.462	0.468		
AJ	0.240	0.260		0.250	0.250	0.250	0.250		
AK	0.053	0.073		0.063	0.063	0.063	0.063		
AL	0.257	0.262	DT0883	0.260	0.260	0.260	0.260		
AM	1.663	1.683		1.677	1.678	1.673	1.675		
AN	0.053	0.073		0.063	0.063	0.063	0.063		
AO	0.022	0.042		0.032	0.032	0.032	0.032		
AP	2.779	2.789		2.783	2.781	2.784	2.780		
AQ									
AR									
<b>Accept/Reject</b>									
was split									

Measured by:	EN	Audited by:	J.F.
Date:	06/10/20	Date:	06/10/23

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	#

DART AEROSPACE LTD				Work Order:	27970
Description: Ø2.500 Support				Part Number:	D2892-1
Inspection Dwg: D2892 Rev. A				Page 1 of 1	

Inspect dimensions highlighted on inspection sheet drawing D2892 Rev. A/DSK077 Rev. A and record below:

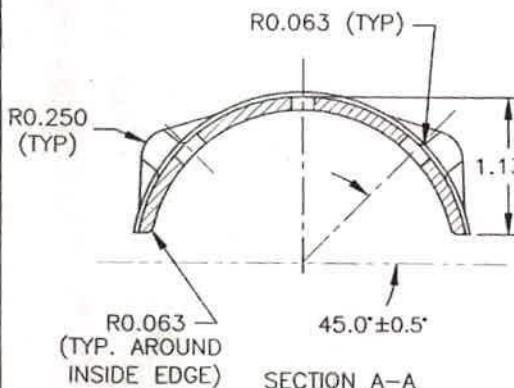
				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section									
A	2.524	2.529		2.529	2.529	2.529	2.529		
B	3.702	3.722		3.711	3.712	3.711	3.715		
C	2.814	2.834		2.813	2.821	2.824	2.823		
D	0.718	0.738		0.726	0.730	0.726	0.720		
E	0.090	0.110		0.093	0.095	0.094	0.091		
F	2.714	2.734		2.723	2.720	2.719	2.712		
G	2.029	2.049		2.035	2.038	2.033	2.024		
H	3.214	3.234		3.223	3.223	3.218	3.220		
I	0.913	0.933		0.922	0.925	0.930	0.921		
J	0.022	0.042		0.032	0.032	0.032	0.032		
K	0.090	0.110		0.099	0.097	0.098	0.098		
L									
HAAS Section									
AA	0.115	0.135		0.128	0.132	0.132	0.131		
AB	0.290	0.310		0.306	0.297	0.298	0.298		
AC	0.040	0.060		0.044	0.043	0.048	0.048		
AD	0.115	0.135		0.110	0.125	0.122	0.121		
AE	0.240	0.260		0.250	0.248	0.246	0.248		
AF	0.188	0.193	DT8706	0.189	0.189	0.189	0.189		
AG	0.240	0.260		0.212	0.250	0.250	0.250		
AH	1.126	1.146		1.145	1.143	1.145	1.147		
AI	0.454	0.474		0.467	0.466	0.468	0.466		
AJ	0.240	0.260		0.250	0.250	0.250	0.250		
AK	0.053	0.073		0.063	0.063	0.063	0.063		
AL	0.257	0.262	DT8683	0.260	0.260	0.260	0.260		
AM	1.663	1.683		1.677	1.675	1.677	1.677		
AN	0.053	0.073		0.063	0.063	0.063	0.063		
AO	0.022	0.042		0.032	0.032	0.032	0.032		
AP	2.779	2.789		2.780	2.780	2.783	2.782		
AQ									
AR									
Accept/Reject									

Measured by:	EN / 3.6	Audited by:	J.F.
Date:	06/10/123	Date:	06/10/123

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	#

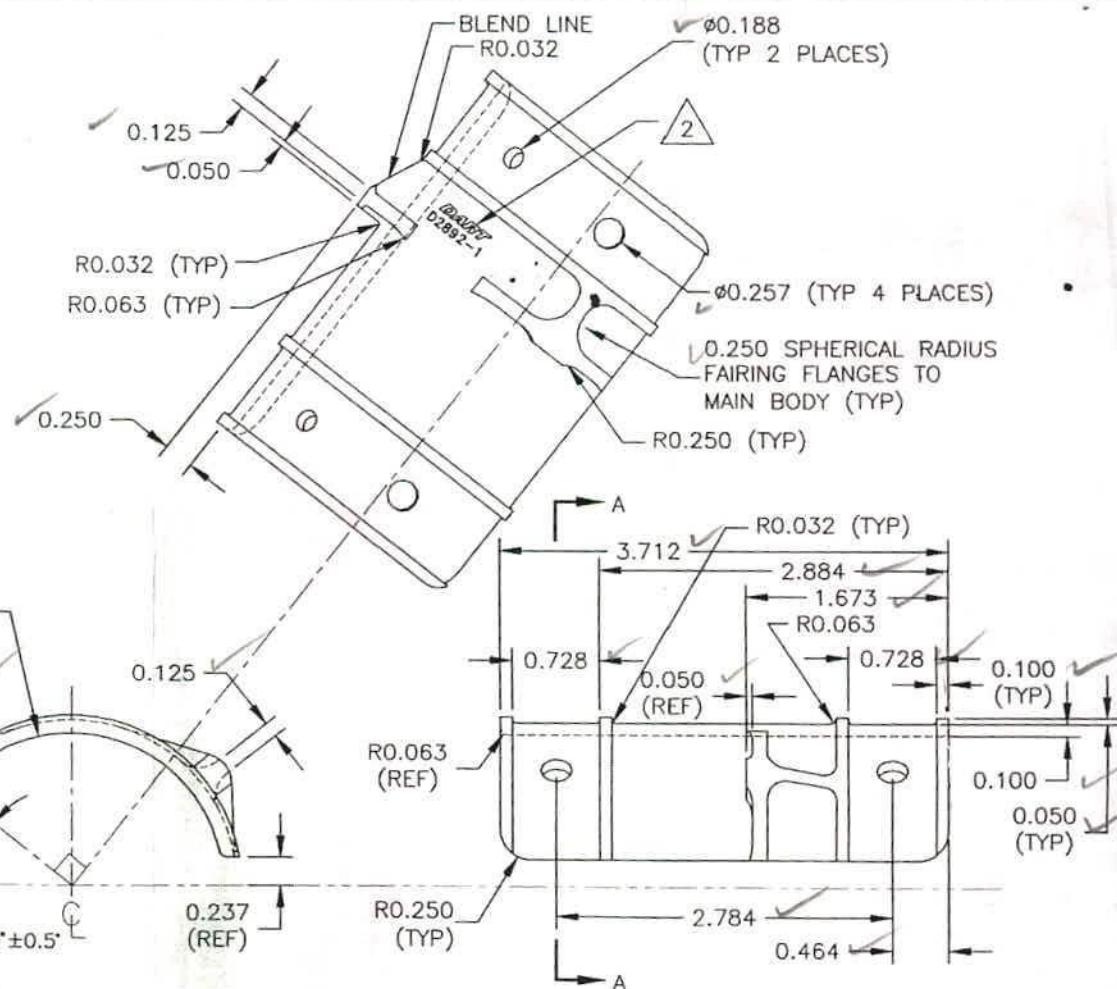
D2892-1

- 1) MATERIAL: 17-4 PH STAINLESS STEEL  
HEAT TREAT TO H900 CONDITION  
(900°F FOR 1 HR, AIR COOL)  
MIN UTS = 170 KSI (38 HRc)
- 2) IDENTIFY WITH DART LOGO (PER DART SUPPLIED GRAPHIC) AND PART NUMBER IN THIS AREA WITH 0.125 HIGH LETTERING 0.010-0.020 DEEP
- 3) BREAK ALL UNMARKED SHARP EDGES 0.010 TO 0.020
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) TOLERANCES ARE PER DART QSI 018 (REF. X.XXX =  $\pm 0.010$ ) UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES
- 7) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3



SECTION A-A

UNCONTROLLED COPY  
NO. 27970  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
ENGINEERING  
RETURN TO  
SHOP COPY



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DART AEROSPACE LTD.

A	00.11.17	NEW ISSUE
DESIGN	CP	DRAWN BY
CHECKED	CP	APPROVED
		DRAWING NO.
		D2892
		REV. A
		SHEET 1 OF 1
		DATE
	00.11.17	TITLE
		Ø2.500 SUPPORT
		SCALE
		1:1

# COPPER AND BRASS SALES

## MATERIAL TYPE STAINLESS STEEL

AISI SERIES  
200 300 400  
AND  
PRECIPIT HARDENING GRADES

## "WARNING"

INHALATION OF FUMES, FRESHLY GENERATED BY THE WELDING OF STAINLESS STEEL CONTAINING ONE OR MORE OF THE FOLLOWING INGREDIENTS, ZINC, MAGNESIUM OR COPPER, ARE KNOWN TO CAUSE METAL FUME FEVER. INHALATION OF DUST OR FUME FROM STAINLESS STEEL CONTAINING ONE OR MORE OF THE FOLLOWING INGREDIENTS, ALUMINUM, IRON, MANGANESE, SELENIUM, OR TIN, HAS ALSO BEEN REPORTED TO CAUSE METAL FUME FEVER AND MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT AND/OR AGGRAVATE PRE-EXISTING CONDITIONS. TARGET ORGAN IS PRIMARILY THE LUNG.

THIS PRODUCT CONTAINS CHROMIUM. EXPOSURE TO CHROMIUM DUST OR FUME MAY CAUSE METAL FUME FEVER WITH FLU-LIKE SYMPTOMS AND KIDNEY AND LIVER DAMAGE. UNDER HIGH TEMPERATURES, HEXAVALENT CHROMIUM MAY BE PRODUCED, IF IN THE INSOLUBLE FORM, IT IS A CONFIRMED HUMAN CARCINOGEN. THIS PRODUCT MAY ALSO CONTAIN NICKEL AND COBALT. INHALATION OF NICKEL OR COBALT DUST OR FUME MAY RESULT IN INFLAMMATION OF THE RESPIRATORY TRACT. NICKEL AND COBALT HAVE BEEN IDENTIFIED AS POTENTIAL HUMAN CARCINOGENS.

IF COATED WITH OIL, MAY CAUSE SKIN IRRITATION/DERMATITIS BY CONTACT. WELDING FUME IS LISTED AS A POSSIBLE CARCINOGENIC TO HUMANS.

READ THE STAINLESS STEEL MATERIAL SAFETY DATA SHEET (MSDS) ON FILE WITH YOUR EMPLOYER BEFORE WORKING WITH THIS MATERIAL

- \* If processing or recycling produces particulate, use exhaust ventilation or other controls designed to prevent exposure to workers. Examples of such activities include melting, welding, grinding, abrasive sawing, sanding and polishing. Any activity which abrades the surface of this material can generate airborne particulate. Use respiratory protection (P100, quantitative fit testing required) if exposures exceed the permissible limits.
- \* The Occupational Safety and Health Administration (OSHA) have set mandatory limits on occupational exposures.
- \* Stainless Steel, in solid form and as contained in finished products presents no special health risk.
- \* Sold for manufacturing purposes only. This product can be recycled; contact your sales representative.

The Occupational Safety and Health Administration require employers to provide training in the proper use of this product.

For additional information, call or write to Copper and Brass Sales, 22355 West Eleven Mile Road, Southfield, MI 48033, telephone 248-233-5600, or visit our web site @ [www.copperandbrass.com](http://www.copperandbrass.com).

**VALBRUNA**

SLATER STAINLESS, INC.  
2400 Taylor Street West, P.O. Box 630  
Fort Wayne, Indiana USA 46801  
Phone: 260-434-2892 Fax: 260-434-2905

**Product Certification Report****Report Number: 4078840**

Certified on May 31, 2005 Page 1 of 1

Order I.D.	Order Date	Commodity Code			
0500940 001	4/29/05	408853-0			
Dim 1	Dim 2	Dim 3	Heat I.D.	Customer I.D.	Customer Purchase Order
3.2500	.0000	.0000	239178	001155	CE5900
Product Shape		Product Surface			
Rounds		HR & Rough Turned			
Length (Inches)		Bill of Lading #		Weight	
132.000 Min. 156.000 Max.		401376			

*Ship To* | COPPER AND BRASS SALES  
415 STATE PARKWAY  
SCHAUMBURG, IL 60173

*Sold To* | VALBRUNA CORP.  
31 IRON HORSE ROAD  
OAKLAND, NJ 07436

**Lifts: 0096**

AISI 630 CONDITION A ASTMA 564-02  
ASME SA 564 01 ED 2002 ADD AMS 2303E AMS 5643Q ✓

**CHEMICAL ANALYSIS**

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	Cb+Ta
.039	.57	.026	.017	.54	15.60	4.60	.18	3.35	.04	.29	.001	.29

HB

353

**TENSILE PROPERTIES****CAPABILITY**

HB	TS (PSI)	.2%YS (PSI)	%EL(2")	%RA	AGE(F)
433	206000	178300	14.1	50.9	900

**MAGNETIC PARTICLE TEST**

FREQ SEV

AVG .00 .00

**MACRO ASTM E340/E381**

MACRO

OK

OK

**PERCENT FERRITE**

% FERRITE

AVG 1.0

Free of mercury and low melting alloy contamination.

Maxx stainless.

Chemical testing performed to one or several of the following ASTM methods: E415, E572, E1019, E1085, E1086.

Material melted in Italy, manufactured in the United States.

Material conforms to listed specifications.

Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1B.

COPPER AND BRASS SALES

SOLD TO:

DATE: 7/21 QTY. 7246S

CUSTOMER PO: 00005721

SHIPPER NO: 47093

BY: 8

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info. I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

*Dennis Hackett*

Dennis Hackett



## CERTIFICATE OF CONFORMITY

**SOLD TO:**

Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, Ont.  
K6A 1K7

**SHIPPED TO:**

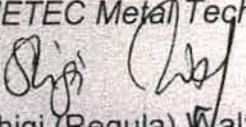
same

<u>QUANTITY</u>	<u>PART NUMBER</u>	<u>PART NAME</u>	<u>P.O. NUMBER</u>
10	DSK076	Support as per Dwg DSK076 D6104-003 B28388	2068
8	DSK076	Support as per Dwg DSK076 D6104-003 B28077	2068
10	DSK076	Support as per Dwg DSK076 D6104-003 B26715	2068
20	DSK077	Support as per Dwg DSK077 D6104-003 B28389	2068
8	DSK077	Support as per Dwg DSK077 D6104-003 B27970	2068
7	DSK077	Support as per Dwg DSK077 D6104-003 B28078	2068
14	DSK080	Support as per Dwg DSK080 D6104-011 B27266	2068

MATERIAL: supplied by DART

We hereby certify that the above parts were made in conformance with applicable drawings.

METEC Metal Technology Inc.

  
Shigi (Regula) Walz

Vankleek Hill, September 20, 2006

